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MEMORANDUM

APRIL 1981

A NEW DANGER: AWACS TO SAUDI ARABIA

The Reagan Administration has announced it is considering the sale of Airborne Warning and Control System (AWACS) E-3A aircraft to Saudi Arabia. This is the most sophisticated aircraft of its kind in the world. Its sale to Saudi Arabia will seriously endanger American interests in the Middle East.

Until now, only the U.S. Air Force and NATO have been provided with AWACS. A sale to Saudi Arabia will mark the first time such a system appears in the arsenal of a Middle East state.

The sale of AWACS to Saudi Arabia should be opposed for the following reasons:

--Internal Saudi security is lax; Saudi stability is questionable. There is danger of the aircrafts' secrets being compromised by defection, diversion of technological manuals, accident, or through Soviet intelligence activities.

--The sale of AWACS to Saudi Arabia will destabilize the arms balance of the region. Never before has any Arab state taken such a quantum technological leap ahead of its Arab neighbors or Israel.

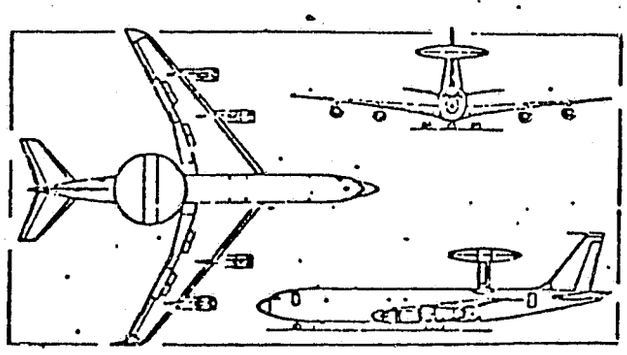
--There has been no Saudi quid pro quo. Saudi Arabia continues to reject the stationing of American troops in the region; refuses to moderate its oil pricing or supply policies; supports the terrorism of the PLO politically and financially; undermines Egyptian President Anwar Sadat; and coordinates opposition to the Camp David peace process.

--For several years after the sale, American personnel will be involved in the AWACS training program, making American involvement in any regional conflict more likely.

--Saudi AWACS will endanger the security of Israel. All of Israel -- its airfields, aircraft and defense systems -- will be exposed to the "sight" of the AWACS flying well within Arab air space. When used in conjunction with Saudi offensive aircraft such as the enhanced F-15 and the air forces of other Arab states, AWACS becomes a potent offensive system.

THE AWACS E-3A SYSTEM

The AWACS is a modified Boeing 707-320B aircraft equipped with a 30-foot rotating radar dome antenna. It is equipped with computers, data-processing, communication and identification equipment, and multi-purpose consoles. The AWACS is a combination early warning radar station, battlefield surveillance plane, and a tactical battle control station.



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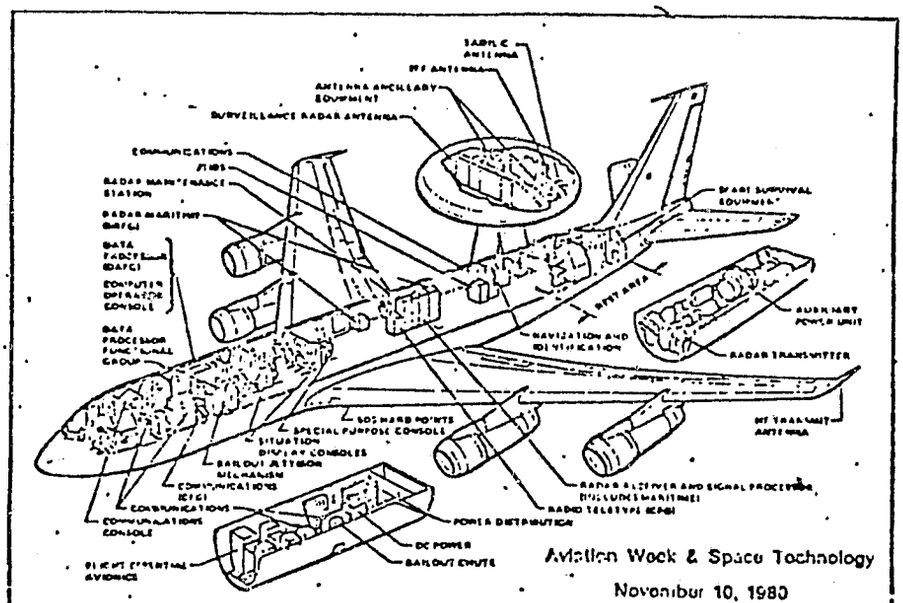
The plane usually carries a crew of 17, consisting of a flight crew of four and 13 AWACS specialists who man the nine multi-purpose display consoles, two auxiliary display units, computers, and communications equipment.

The plane has "look-down" radar; radar which can "see" downward and differentiate moving targets from terrain or "background clutter." This radar can detect up to 600 targets and the on-board computers can define at least 240 in terms of size, altitude, identity, speed and direction. Displayed instantaneously ("real-time") to the AWACS technicians, this information can be relayed from the AWACS aircraft via secure communications to friendly jet fighters and interceptors, ground defenses, ground stations, and other friendly forces.

The AWACS standard altitude station is 30,000 feet, and from there its radar has a detection range of over 250 miles. Thus, flying well within Saudi air space, the aircraft is capable of looking deep into neighboring Arab states, Iran or all of Israel. The plane can remain on station for 10-12 hours.

E-3A MODIFICATIONS

NATO forces will receive their first AWACS this year and have requested several modifications to the aircraft. These include additional situation display consoles, new radios with anti-jam features, a bigger computer and the capability to detect and interpret three times as many targets. It is unclear whether Saudi Arabia will obtain these enhancements.



Aviation Week & Space Technology

November 10, 1980

High frequency (HF) transmit antenna added at the left wing tip of the USAF/Boeing E-3A is the principal external feature distinguishing the NATO and U.S. standard version of the aircraft from the core configuration in which the first 24 airborne warning and control system (AWACS) aircraft are being delivered to USAF. Internal differences include expanded radar and communications capabilities, a more powerful computer, and provision for anti-jam defense and electronic support measures. Layout is shown in cutaway.

There are numerous top-secret systems employed on the U.S. Air Force AWACS and presumably on the American AWACS now flying on a temporary basis out of the Riyadh air base. These include special encipherment equipment; signal intelligence (SIGINT); joint tactical information distribution system (JTIDS); identification of friend or foe system (IFF); and additional electronic counter-counter measures (ECCM). Additional enhancements to give AWACS helicoptor and maritime detection capabilities are planned -- if not already implemented. A television link to the ground to provide ground commanders with real-time battlefield information is also being developed.

It is unlikely these enhancements would be denied to Saudi Arabia. During 1977 congressional hearings on a proposed sale of AWACS to Iran, the stripping of equipment that gave the AWACS an offensive capability was rejected by the Department of Defense. "Such a modification would require design changes, renewed development and degradation of the defense role," DOD spokesmen explained.

Based on Saudi demands for the enhancement of its F-15s with conformal fuel tanks, AIM-9L air-to-air missiles, multiple ejection bomb racks, and mid-air refueling tankers, it is unlikely that Saudi Arabia will accept anything less than a fully-enhanced and equipped Airborne Warning and Control System.

AWACS' PROVEN CAPABILITIES

Even the earliest versions of AWACS exhibited unprecedented capabilities. According to congressional testimony in 1977, "AWACS has a potent offensive capability as an airborne command and control center ... a 'force multiplier' for the effectiveness of tactical air forces," reported Senator John Culver (SFRC, July 18). "Even the introduction of a crude airborne command center over North Vietnam, multiplied our aircraft kill ratio by a factor of six."

During the 1971 Indo-Pakistani war, the Soviet Union deployed a less sophisticated AWACS (code-named "Moss") with devastating effectiveness. Flying well within Indian air space, the AWACS directed Indian bombers against targets up to 100 miles inside Pakistan. Pakistani defenses could not counter the precision, low-level night attacks.

In one 1972 test of an early U.S. AWACS prototype over Europe, every aircraft airborne between Warsaw and Paris was detected. According to DOD analyses, AWACS will increase NATO's air defense effectiveness by a factor equivalent to more than doubling NATO's entire interceptor force. In a major exercise conducted at Nellis Air Force Base in Nevada, two E-3As were able to coordinate 134 "friendly" aircraft and stand off 274 "enemy" planes. All attempts to attack the AWACS failed.

According to a recent press account, U.S. AWACS now on temporary assignment in Saudi Arabia can "see" any object "moving at more than 80 miles an hour within a 250-mile radius. 'If there is a Mercedes moving along the highway, the AWACS can see it,' said one source." (San Francisco Chronicle, December 8, 1980)

AWACS has a devastating effectiveness when directing aircraft such as the F-15 which Saudi Arabia will receive this year. According to Gen. John Vogt, a NATO tactical air commander, tests in 1975 showed that the AWACS can direct an F-15 in bad weather so that its long-range radar can lock-on to numerous targets at all altitudes over a wide front. "The AWACS determines a threat that may be appearing ... picks them up several hundred miles out, takes the closest targets, (and) can vector the F-15 into the general vicinity," the commander explained. "The F-15 with its long-range radar locks on early, moves for the kill, frequently without having to change its altitude, gets a missile off many, many miles away, and then can peel off and go to the next target. We've demonstrated the capability to knock down multiple threats of sophisticated airplanes at all altitudes on one mission with one F-15."

THREAT TO AMERICAN SECURITY

Compromise of the AWACS' secrets would be a dangerous blow to American security. During 1977 congressional hearings on the sale of AWACS to Iran, the director of the General Accounting Office's Procurement and Systems Acquisition

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Division warned, "If the Soviets should gain access to the AWACS they could move ahead, in the opinion of the Director of Central Intelligence, some five to seven years in certain technologies. More immediately, they could learn how to jam any now contemplated AWACS version."

It must be recalled that in 1977, State Department, Defense Department and CIA experts all gave assurances of Iranian stability and argued that there would be a minimal risk in the transfer of sophisticated military equipment to the Shah's regime. Within 30 months, the Shah had fallen, and training manuals for systems such as the F-14 and the Phoenix missile were compromised.

The Saudi regime is comparably unstable and faces numerous threats. The takeover of the Grand Mosque last year provided ample evidence: that there is popular resentment against the concentration of power in the hands of the Saudi royal family; that skewed budgetary priorities and pervasive corruption are arousing domestic discontent; that the tribal National Guard and Saudi army are unreliable and potential rivals; and that the primary threat to the Saudi regime comes from its own feudal policies and from conspiracies based in rival Arab states.

THE THREAT TO ISRAEL

The range and detection capabilities of the AWACS, combined with the 62 F-15 fighter-bombers Saudi Arabia will soon receive, will make Saudi Arabia a potent force along Israel's eastern front. In past engagements, Saudi Arabia provided forces to the Syrian and Jordanian fronts, and it is probable that equipped with such advanced systems as the AWACS, enhanced F-15s and AIM-9L missiles, Saudi Arabia will be drawn into any future conflict.

Saudi acquisition of AWACS will preclude Israel's ability to fight a preemptive war -- a vital option for a small country outgunned by the combined forces of its neighbors. Special operations, such as the 1976 Entebbe rescue, would be impossible.

An Arab surprise attack, in coordination with Syria, Jordan and Iraq, will be possible if AWACS are deployed to cover all of Israel's airspace.

The AWACS far surpasses any equipment in Israel's arsenal. The closest system Israel has to the E-3A AWACS is the E-2C Hawkeye, a small, twin-turboprop airborne early warning system. But that is the Hawkeye's only role; it has no battle control capability. The radar range and the hour-on-station endurance is roughly half that of the AWACS. The E-3A can perform against electronic countermeasures better and has a much greater airborne survivability because of its speed and greater

E3A/E2C COMPARISON FACT SHEET

	Boeing E3A	Grumman E2C
Standard mission profile	8½ hr on-station if orbit located 500 nmi from base.	4 hr on-station if orbit located 200 nmi from base.
Endurance	11½ hr.	6 hr.
Max range	6,500 nmi.	1,400 nmi.
Service ceiling	39,000 ft.	30,000 ft.
Station altitude	30,000 ft.	25 to 30,000 ft.
Radar search radius	220 nmi horizon if E3A at 30,000 ft, 300-plus nmi if target is above radar horizon.	220 nmi horizon if E2C at 30,000, less if at 25,000 ft, E2C radar detection range for very high altitude targets is less than that of E3A.
Tracking capability	100 targets—manually initiated/automatically tracked	300 targets—automatically acquired and tracked
Crew	17 (4 crew plus 13 system operators)	5 (2 crew plus 3 system operators).
Speed	420 kt (cruise); 365 kt (on-station).	209 kt (cruise); 184 kt (on-station).
Missions	Over-land radar surveillance (over-sea capability planned) air traffic control, strike/intercept control, airborne early warning. Full autonomous command post capability.	Over-land and sea radar surveillance. Air traffic control, strike/intercept control airborne early warning. Very limited autonomous command post capability.

Sources: House and Senate fiscal year 1978 DOD authorization hearings, Boeing Corp., Grumman Corp., Jane's, Defense & Foreign Affairs Daily", and "Interavia".

SOURCE: SFRC hearings, July 18, 1977

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surveillance. The E-2C's radar crew consists of only three operators (compared to the E-3A's 13) and only three specialized consoles (compared to the E-3A's 9 -- and soon to be 12 -- multi-purpose display consoles).

Israel's airforce is one of the finest in the world and certainly capable of meeting the challenge from any one Arab state. But a combination of forces, protected and coordinated by AWACS, would put a severe strain on Israel's defenders. Saudi AWACS would be relatively safe from Israeli interceptors. The AWACS would be flying over Arab territory with Arab fighter escort, protected by surface-to-air missiles deployed along the border, and able to detect any interceptor approaching. If it detected any Israeli aircraft the AWACS could call in fighter support, turn away and fly at almost 600 miles per hour, or deploy electronic counter measures.

CONCLUSIONS

--The sale of AWACS will not lessen the internal threats to Saudi stability.

--The sale of AWACS to Saudi Arabia will be ineffective in countering the Soviet encroachment in the Middle East.

--The sale of AWACS will endanger American secrets and technology.

--The sale of AWACS will threaten the security of Israel.

--The sale of F-15s and other sophisticated military hardware has not elicited Saudi moderation on oil price and supply or on the Arab-Israeli conflict.

--The sale of AWACS will endanger American interests in the Middle East.

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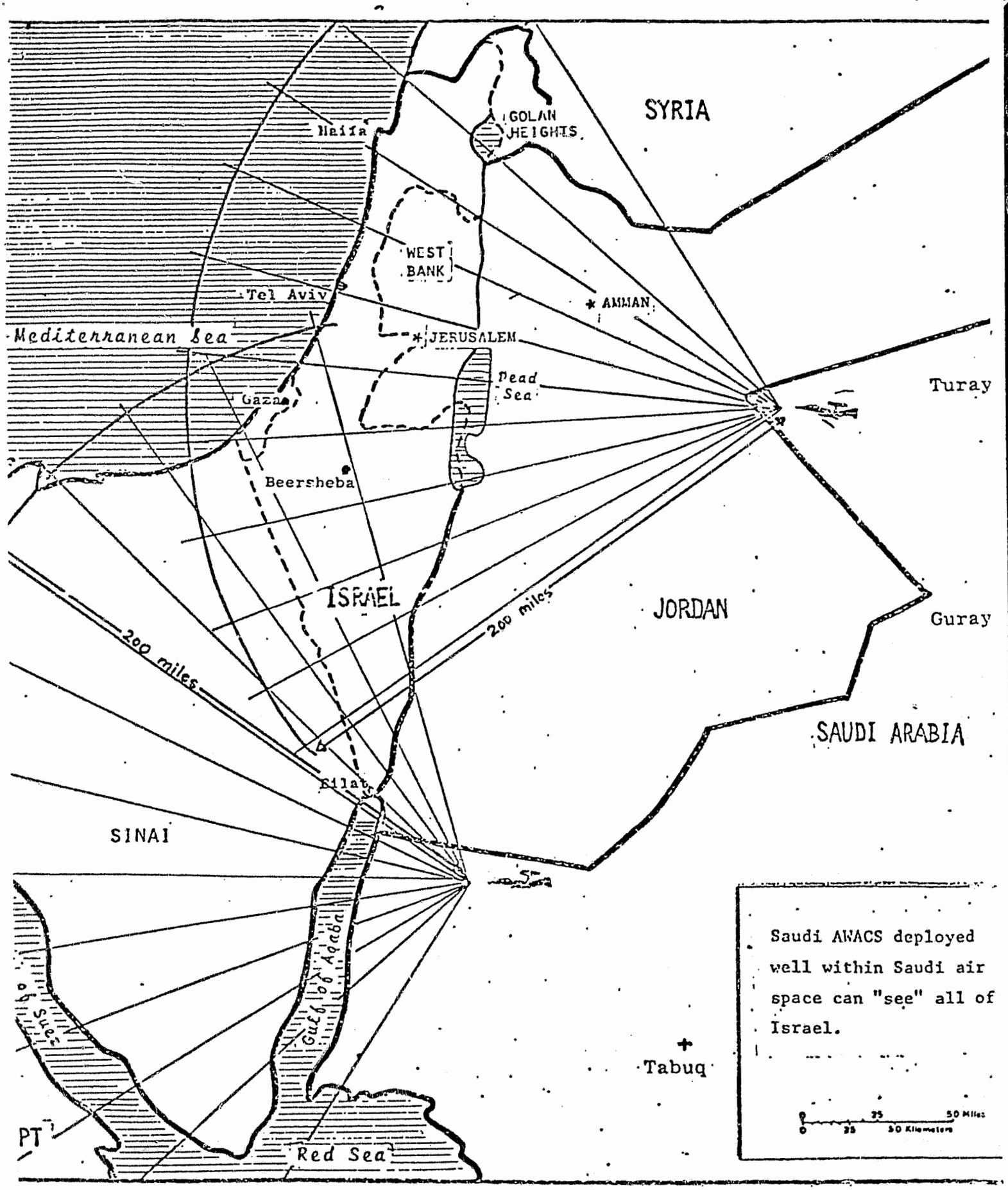
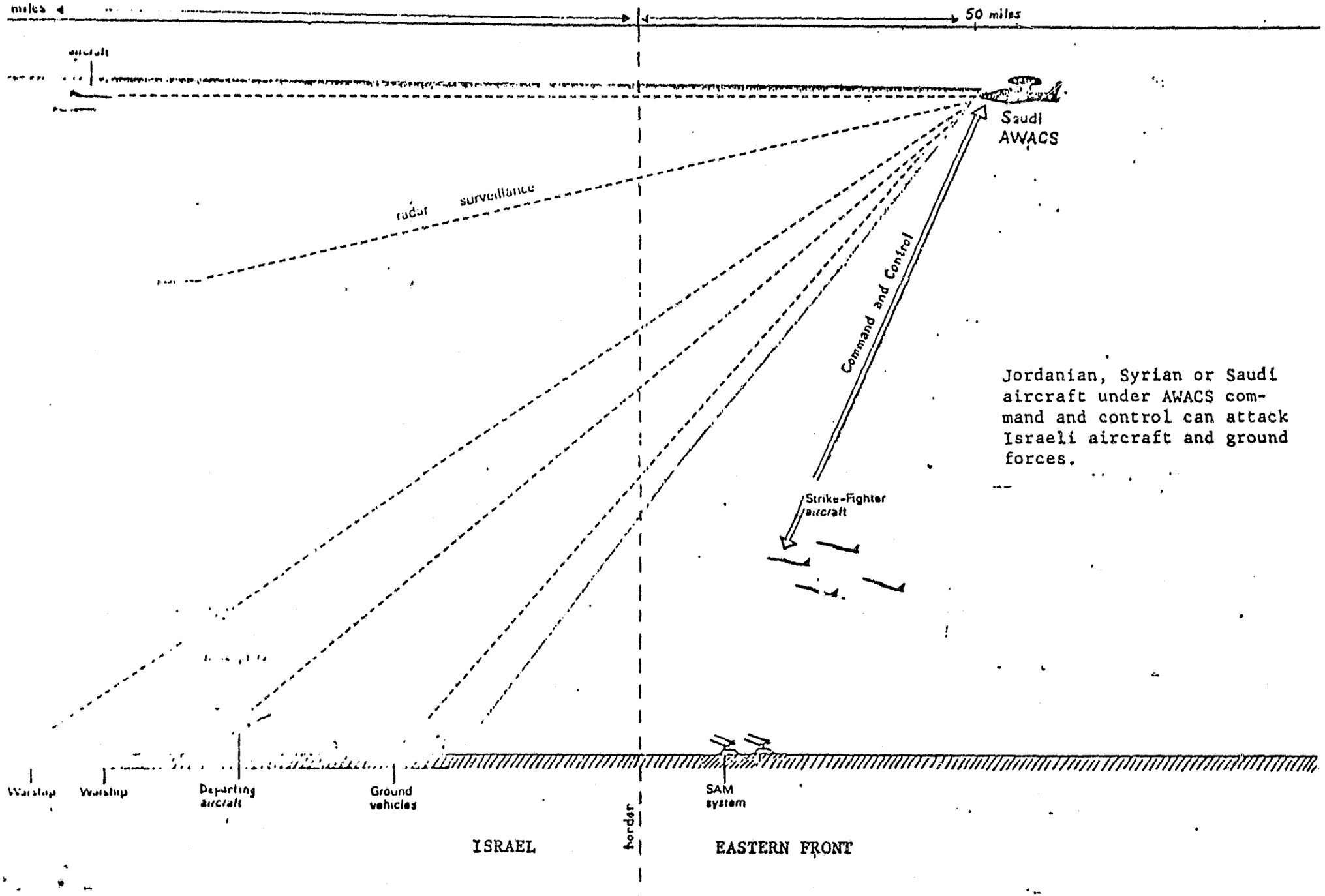
- SURVEILLANCE RANGE OF SAUDI AWACS -



THE DANGERS OF SAUDI AWACS



Jordanian, Syrian or Saudi aircraft under AWACS command and control can attack Israeli aircraft and ground forces.

THE DANGER OF AWACS -- TALKING POINTS

Airborne Warning and Control System

THE PLANE

-A Boeing 707 with a thirty-foot rotating dome antenna

-Combines an airborne early warning radar station, battlefield surveillance plane and tactical control station.

-Carries 12 radar systems which at the altitute of 40,000 ft. have a detection range of over 250 miles. Can identify 600 targets, of which the on-board computers can translate 240 of them in terms of the targets' size, altitude, speed, and direction. This information is displayed to radar technicians.

-Equipped with "look-down radar" which can interpret moving targets at low altitudes from background clutter.

-Usually manned by 12 radar/control technicians and flown by a crew of 5.

-Once targets are identified, control technicians can direct interceptors to targets for attack.

-Can remain in the air for 12 hours, covering thousands of miles.

BATTLE-TESTED

-Early versions of AWACS used by the U.S. over North Vietnam multiplied the U.S. aircrafts' kill ration by a factor of six ("force multiplier") according to 1977 congressional testimony.

-Less potent Soviet AWACS was used in Indo-Pakistani war to direct low level Indian penetrations at night against Pakistani targets with great precision. The Pakistani air defense could not counter the attacks.

-AWACS-F-15 coordination was tested by NATO in Europe showing devastating effectiveness.

CONTRARY TO AMERICAN INTERESTS

-No quid pro quo from Saudis on oil, bases, PLO, peace treaty, etc.

-The AWACS are the most sophisticated plane in U.S.

-The AWACS only fly in U.S. and NATO airforces

-Can't afford to give them to an unstable regime.

-Soviets will try to compromise the aircrafts' secrets

-Look what would have happened had we delivered AWACS to Iran

-Americans will be involved in Saudi AWACS for several years -- danger of their involvement in Saudi conflicts

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DANGER TO ISRAEL

-Continued Saudi hostility to Israel; Jihad; Eastern Front; etc.

-Every aircraft in Israel will be in Saudi radar scopes. Even positioned 100 miles inside Arab territory, the planes will look over all of Israel.

-Removes any possiblity of Israel launching a surprise/pre-emptive attack.

-Saudi AWACS can coordinate air attacks for all of the airforces of the Eastern Front -- Syria, Jordan, Iraq

-These AWACS can provide real-time data to ground troops on ground fighting conditions.

-These AWACS can provide early warning to ground troops, anti-aircraft units, other airforces of Israeli takeoffs or approaches.

-AWACS have a much greater range, detection capability and endurance than the much smaller Hawkeye E-2C in Israel's airforce.

BUT AREN'T AWACS VULNERABLE? -- NO.

-AWACS are not "sitting ducks."

-AWACS fly over Arab territory

-has fighter escort

-protected by SAMS along the border

-can detect any interceptor approaching and turn an flee

-has electronic counter-measures (ECM): chaff, radar jammers, flares, etc